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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/899,365	07/02/2001	Ali Akgun	MBHB 01-026-A	3076
20306	7590	05/05/2006	EXAMINER	
MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP			DAVIS, CYNTHIA L	
300 S. WACKER DRIVE			ART UNIT	
32ND FLOOR			PAPER NUMBER	
CHICAGO, IL 60606			2616	

DATE MAILED: 05/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/899,365

Applicant(s)

AKGUN ET AL.

Examiner

Cynthia L. Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-14 and 17-27 is/are allowed.
- 6) ☒ Claim(s) 1-6, 10, 15 and 16 is/are rejected.
- 7) ☒ Claim(s) 7-9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/9/2001.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. Applicant's preliminary amendment dated 12/2/2002 has not been entered because it does not comply with 37 CFR 1.121(c).
2. Misnumbered claims 12-21 have been renumbered 11-20, see 37 CFR 1.126.
3. Misnumbered steps (d)-(f) in claims 11 and 23 ^{should be} ~~misnumbered~~ renumbered (a)-(c).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 6, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Howard in view of Surazski.

Regarding claim 1, a data-over-cable system having a cable modem termination system and a cable modem in communication with each other over a cable network is disclosed in Howard, figure 1. A method of reducing latency that comprises transmitting data associated with either (i) packet arrival times or (ii) latency between grants of bandwidth and packet arrival times from a cable modem to a cable modem termination system; and transmitting from said cable modem termination system grants of bandwidth in an upstream direction to said cable modem at intervals derived from said data in step (a), wherein said grants of bandwidth are timed to arrive simultaneously with or shortly after arrival of additional packets at said cable modem for transmission to said cable modem termination system is missing from Howard. However, Surazski

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discloses in column 2, lines 45-55, a BTS (equivalent to the CMTS) that receives cell arrival data from remote equipment (equivalent to the cable modem) and uses that data to schedule bandwidth for the remote equipment. It would have been obvious to one skilled in the art to adapt the method of Surazski to a data over cable system. The motivation would be to accurately estimate the bandwidth demands of upstream units and appropriately allocate bandwidth (see Surazski, column 2, lines 35-40).

Regarding claim 2, the step of transmitting Transmission Control Protocol acknowledgment packets from said cable modem to said cable modem termination system in response to said grants of bandwidth is disclosed in Howard, column 14, lines 36-37 (disclosing transmission of TCP ACKs in the data over cable system; the ACKs would only be transmitted in available, scheduled bandwidth, which would be in response to the grants of bandwidth).

Regarding claim 3, the step of transmitting voice packets from said cable modem to said cable modem termination system in response to said grants of bandwidth is disclosed in Howard, column 14, lines 36-37 (disclosing transmission of voice packets in the data over cable system; the voice packets would only be transmitted in available, scheduled bandwidth, which would be in response to the grants of bandwidth).

Regarding claim 4, transmitting a time stamp indicating the arrival time of a packet at said cable modem is missing from Howard. However, Surazski discloses in column 2, lines 45-48 (disclosing the BTS receiving arrival time information from the remote equipment). It would have been obvious to one skilled in the art at the time of the invention to transmit arrival time data in the system of Howard. The motivation

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would be to The motivation would be to accurately estimate the bandwidth demands of upstream units and appropriately allocate bandwidth (see Surazski, column 2, lines 35-40).

Regarding claim 6, said data transmitted in (a) is transmitted in an extended header in a DOCSIS MAC header is not specifically disclosed in Howard. However, Howard does disclose in column 6, lines 47-49, processing DOCSIS MAC headers. Further, Surazski discloses in column 9, lines 26-34, including time stamp data in an extended header of a cell. It would have been obvious to one skilled in the art at the time of the invention to include the arrival time data in the header of the data packets. The motivation would be to have a convenient place to communicate the arrival time data.

Regarding claim 10, the step of adjusting a nominal grant interval boundary by an amount indicated by the data in step (a) so as to time the arrival of grants of bandwidth at said cable modem with the arrival of a packet at said cable modem for transmission to said cable modem termination system is missing from Howard. However, Surazski discloses in column 2, lines 56-64, allocating bandwidth based on arrival times, which in a TDMA system, would involve adjusting the slot intervals granted to the remote equipment. It would have been obvious to one skilled in the art at the time of the invention to adjust the grant intervals based on the arrival times to have bandwidth available when the remote equipment is ready to transmit in the data-over-cable system of Howard. The motivation would be to appropriately allocate bandwidth (Surazski, column 2, lines 35-40).

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Howard in view of Surazski in further view of Wu. Said time stamp is synchronized with a DOCSIS system clock is missing from Howard. However, Wu discloses in column 5, lines 25-34, using a DOCSIS clock for timestamping. It would have been obvious to one skilled in the art at the time of the invention to use a DOCSIS clock to timestamp in the DOCSIS system of Howard (see Howard, column 1, lines 58-61). The motivation would be to use a functionality normally available in a DOCSIS system.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hurvig in view of Surazski. A cable modem having a memory is disclosed in Hurvig, figure 1, element 60. Software or hardware apparatus recording in said memory the time at which packets arrive at said cable modem from an end station connected to said cable modem; and communications apparatus including software in said cable modem forwarding said time recorded in said memory to a cable modem termination system is missing from Hurvig. However, Surazski discloses in column 2, lines 45-55, column 9, lines 22-56, and figure 3, element 330, a frame create module in a remote equipment (equivalent to a cable modem) that creates and stores time stamp information, and sends that time stamp information to a BTS (equivalent to the CMTS). Software implementation of the steps of Surazski are disclosed in column 3, lines 25-34. It would have been obvious to one skilled in the art to adapt the method of Surazski to a data over cable system. The motivation would be to accurately estimate the bandwidth demands of upstream units and appropriately allocate bandwidth (see Surazski, column 2, lines 35-40).

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Howard in view of Surazski in further view of Wu. Said cable modem observes a DOCSIS system clock and wherein said recording in said memory of the time comprises a recording of said time in accordance with said DOCSIS system clock is missing from Hurvig. However, Wu discloses in column 5, lines 25-34, using a DOCSIS clock for timestamping. It would have been obvious to one skilled in the art at the time of the invention to use a DOCSIS clock to timestamp in the DOCSIS system of Hurvig. The motivation would be to use a functionality normally available in a DOCSIS system.

Allowable Subject Matter

7. Claims 7-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 11-14 and 17-27 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia L. Davis whose telephone number is (571) 272-3117. The examiner can normally be reached on 8:30 to 6, Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (571) 272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CLD
4/19/2006

CLD
4/19/06

Chau T. Nguyen

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